REMARKS

In the Office Action, claims 1-24 were rejected. Claims 1-24 are believed to be patentable in their present form. Accordingly, reconsideration and allowance of all pending claims are requested in view of the arguments herein below.

Rejections Under 35 U.S.C. § 102

Claims 1-24 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,061,970 (hereinafter "Magneron"). Claims 1, 10, 11, 12, 21, 22, 23, and 24 are independent. All of the recited claims are believed to be patentable as cited below.

Claims 1, 10, 11, 12, 21, 22, 23, and 24 and Claims Depending Therefrom.

Magneron fails to teach facilitating communication in an *electrical power network*.

The Examiner argued that Magneron is believed to teach a method of facilitating communication in an electrical power network having a complex impedance. The Examiner cited the passages at col. 2, lines 12-39, col. 3, lines 55-68 and col. 7, lines 42-65 in support of the rejection.

The cited passage at col. 2, lines 12-39 reads:

> According to the invention there is provided a *repeater station* for the *transmission of electric signals* covering a predetermined frequency band, comprising an equalizer having an adjustable signal level/frequency response slope, an automatic feedback control chain responsive to the output of the equalizer to vary the frequency response slope therefrom in a sense to maintain substantially constant the level of a reference component in the output signal having a predetermined frequency.
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> According to the invention there is further provided a *repeater station* for equalizing electrical signals having a predetermined band width and passing along a transmission line the station comprising an equalizer having a signal level/frequency characteristic which generally complements that of the transmission line, feedback means for monitoring the output of the

> equalizer and responsive to a reference signal therein which is processed through the equalizer and has a frequency equal to the upper frequency in the predetermined bandwidth, the feedback means being operative to control the slope of the equalizer characteristic in a sense to maintain the monitored level of the reference signal at a predetermined level whereby to compensate the characteristic of the equalizer for variations in the characteristic of the transmission line due to changes in temperature and line length over a limited range. (Emphasis added).

The cited passage at col. 3, lines 55-68 reads:

> When the common tuning frequency of the two resonant circuits is adjusted so as to be in the vicinity of 300 MHz, the frequency response is that of curve IA of FIG. 3B. For signals having the resonant frequency, the attenuator passes these substantially without attenuation. Indeed, the resonant circuit of L104 and C105 offers minimum impedance which in effect short-circuits the series connected resistors R101 and R102. At the same time, the parallel resonant circuit L106 and C107 is an anti-resonant circuit (or rejector, tank, trap circuit) offering a maximum impedance; and it prevents the passage of the resonant frequency currents towards the chassis, which is the attenuation generation factor. The possibility of resonance frequency signals is further reduced if the input impedance of the amplifier 11 is high.

The cited passage at col. 7, lines 42-65 reads:

> A second direct current path passes therefore through the resistor 135, the diode 134, the choke coil 137, and the emitter-collector path of the transistor 136. The current flowing along this path is dependent upon the output voltage supplied to the base of the transistor 138 by the amplifier 144. Therefore, this current which is controlled by the transistor 138, when it increases, causes reduction in the high frequency resistance of D134 and so produces a voltage drop at the junction of the components D134, R135 and D136. This in turn decreases the current through the components D136, D131 and R130 and so increases the high frequency resistance of the diodes D131 and D136 to reduce the attenuator losses. Conversely, the resistance of the diode D134 tends towards infinity whereas that of the diodes D131 and D136 tends towards a minimum at a value of 75 ohms corresponding to the characteristic impedance of the attenuator. This impedance is maintained

> substantially at this value throughout the useful variation area of the attenuator.

Applicants have closely considered these passages and, indeed, the Magneron patent as a whole. The cited passages from Magneron, and the entire reference, do not support the Examiner's position, however. As can be seen from the passages reproduced above and from the Magneron patent as a whole, Applicants respectfully submit that Magneron teaches a *repeater station* for *cable transmission* of high frequency signals covering a predetermined wide band of frequencies and including a reference component having a predetermined frequency.

Furthermore, Magneron has nothing whatsoever to do with distribution of communications signals in an electrical power network. Applicants reiterate that Magneron teaches a *television signal transmission system incorporating repeater stations*, where a ***dedicated coaxial cable*** is used for the distribution of television signals. Support for Applicants' arguments may be found in passages at col. 1, lines 7-10, and col. 1, lines 11-13.

The cited passage at col. 1, lines 7-10 reads:

> The invention relates to *transmission systems incorporating signal transmission repeater stations for transmitting and distributing television signals* for example. (Emphasis added).

The cited passage at col. 1, lines 11-13 reads:

> The distribution of television signals, or "teledistribution", on *co-axial transmission.* (Emphasis added).

On the contrary, the claims in the present application relate to *facilitating communication in an electrical power network* having a complex impedance. In other words, a signal to be communicated is superimposed on a power line voltage. Accordingly, power lines in the electrical power network are employed to facilitate

communication. More particularly, an electrical outlet in the electrical power network may be configured to serve both as a source of electrical power and a port for the communication signal. Support for Applicants' arguments may be found in the passage at paragraph 2 of the present application.

> In a power line communication (PLC) system, *a communication signal propagates over wires of an electrical power network.* PLC signaling is typically performed by superimposing a high frequency signal, e.g., a frequency greater than 20 KHz, on top of a power line voltage. An electrical outlet in the power network can serve as both a source of electrical power and a port for the communication signal. Thus, a PLC transceiver plugged into the electrical outlet receives both electrical power and the communication signal via the electrical outlet. Note however, that some PLC devices do not necessarily receive power from the power line, or at least do not depend on the power from the power line. Therefore, in a PLC system, the power line is used for communication purposes, and in some cases, communication can be conducted either when power is present or is not present. (Emphasis added.)

Accordingly, Applicants submit that as described in the specification of the present application, the electrical power network may advantageously be employed to also facilitate communication of data. To anticipate the pending claims, any sufficient prior art reference must teach signal transmission in the manner claimed, as well as the evaluation of changes in impedance on such communication, as claimed.

Magneron fails to teach *modifying a complex impedance of an electrical power network* to facilitate communication in the electrical power network.

The Examiner argued that Magneron is believed to teach a method of facilitating communication in an electrical power network having a complex impedance, where the method includes modifying the complex impedance of the electrical power network. The Examiner cited the passages at col. 2, lines 12-39, col. 3, lines 55-68 and col. 7, lines 42-65 in support of the rejection. These passages were reproduced above, and here again, do not support the Examiner's contentions.

Here again, Applicants have closely considered the above passages and, indeed, the Magneron patent as a whole. The cited passages from Magneron, and the entire reference, do not support the Examiner's position, however. As can be seen from the passages reproduced above, Applicants respectfully submit that Magneron teaches *adjusting the common tuning frequency of the two resonant circuits* so as to be in the vicinity of 300 MHz. Moreover, *the impedance is maintained substantially at this value* throughout the useful area of the attenuator.

On the contrary, Applicants reiterate that as described in the specification of the present application, the complex impedance of the electrical power network may be modified to facilitate communication of data. Furthermore, the quality of transmission may be enhanced by modifying the complex impedance associated with the electrical power network. In other words, this modification of the complex impedance of the electrical power network greatly facilitates substantially increasing the signal strength of the attenuated signal that propagates through the electrical power network. As set forth in paragraphs 23-24 of the application:

> Thus, with a particular balance of cancellations, the attenuation is severe. However, *if the complex impedance of electrical power network 105 is modified slightly*, this balance is disturbed and the signal strength at outlet 130 increases substantially. (Emphasis added).
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> * * *
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> Electrical power network 105 may have various electrical appliances coupled to it, for example, a refrigerator or a light. *The complex impedance of electrical power network 105 can be changed by switching an appliance off or on, by plugging an appliance into an outlet, or by removing an appliance from an outlet.* A change of impedance at any point in electrical power network 105 can have an effect throughout electrical power network 105. (Emphasis added).

As described hereinabove, Magneron teaches modifying the common tuning frequency of the two resonant circuits, and increasing and decreasing the resistance of diode 134, while the claims recite *modifying the complex impedance of an electrical power network* to facilitate communication employing the electrical power network. Hence, Applicants respectfully submit that there is simply no similarity between adjusting the common tuning frequency of the two resonant circuits in Magneron and the modification of the complex impedance of the electrical power network in the claims. Applicants submit further that no one skilled in the art could glean the claimed invention from Magneron's teachings regarding adjusting the common tuning frequency of the two resonant circuits.

Magneron fails to teach *determining whether modifying a complex impedance of an electrical power network affected a quality of communication* in the electrical power network.

The Examiner argued that Magneron is believed to teach determining whether modifying the complex impedance of the electrical power network affected a quality of the communication in the electrical power network. The Examiner cited the same passages noted above in support of the rejection.

Here again, Applicants have closely considered these passages and, indeed, the Magneron patent as a whole. As noted above, Applicants respectfully submit that Magneron teaches a television signal transmission system incorporating repeater stations, where the common tuning frequency of the two resonant circuits may be adjusted. Moreover, as discussed above, because Magneron fails to teach modifying the complex impedance of the electrical power network, Applicants respectfully submit that Magneron cannot anticipate the claimed subject matter.

On the contrary, as noted above, Applicants reiterate that as described in the specification of the present application, the complex impedance of the electrical power

network may modified to facilitate communication of data. In other words, this modification of the complex impedance of the electrical power network greatly facilitates substantially increasing the signal strength of the attenuated signal that propagates through the electrical power network. Furthermore, the quality of communication consequent to modification of the complex impedance associated with the electrical power network may be evaluated. As set forth paragraph 25 of the present application:

> Quality of communication may be gauged in any suitable manner. One technique for gauging quality is based on by a bit error rate (BER). If the BER is less than a threshold value, the quality is considered acceptable, otherwise, the quality is considered unacceptable. *Another technique for gauging the quality is based on whether the communication is acknowledged by a receiver coupled to the electrical power network.* For example, assume transceiver 145 transmits a message to transceiver 150. If the receiver in transceiver 150 acknowledges receipt of the message, the quality is considered to be acceptable, otherwise, the quality is unacceptable. (Emphasis added).

Here again, as mentioned above, Magneron is silent regarding monitoring the quality of communication, while the present application teaches and claims *determining whether modifying the complex impedance of an electrical power network affects the quality of communication.* Hence, Applicants respectfully submit that there is simply no similarity between Magneron and the determination of the quality of communication subsequent to the modification of the complex impedance of the electrical power network in the claims. Applicants submit further that no one skilled in the art could glean the claimed invention from Magneron's teachings regarding television signal transmission over a dedicated coaxial cable.

For the reasons summarized hereinabove, Applicants respectfully submit that Magneron relied upon by the Examiner cannot support a *prima facie* case of anticipation of independent claims 1, 10, 11, 12, 21, 22, 23, and 24.

Further, claims 2-9 depend directly or indirectly on independent claim 1. Also, claims 13-20 depend directly or indirectly on independent claim 12. Accordingly, Applicants request that claims 2-9 and 13-20 are allowable by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 1-24 under 35 U.S.C. §102(b) be withdrawn.

For the reasons summarized hereinabove, Applicants respectfully submit that the reference relied upon by the Examiner cannot support a *prima facie* case of anticipation of claims 1, 10, 11, 12, 21, 22, 23, and 24. Accordingly, Applicants respectfully submit that independent claims 1, 10, 11, 12, 21, 22, 23 and 24, and the claims depending therefrom are allowable and respectfully request the Examiner to reconsider rejection of the claims.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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